ENGINEERING NEWS-RECORD

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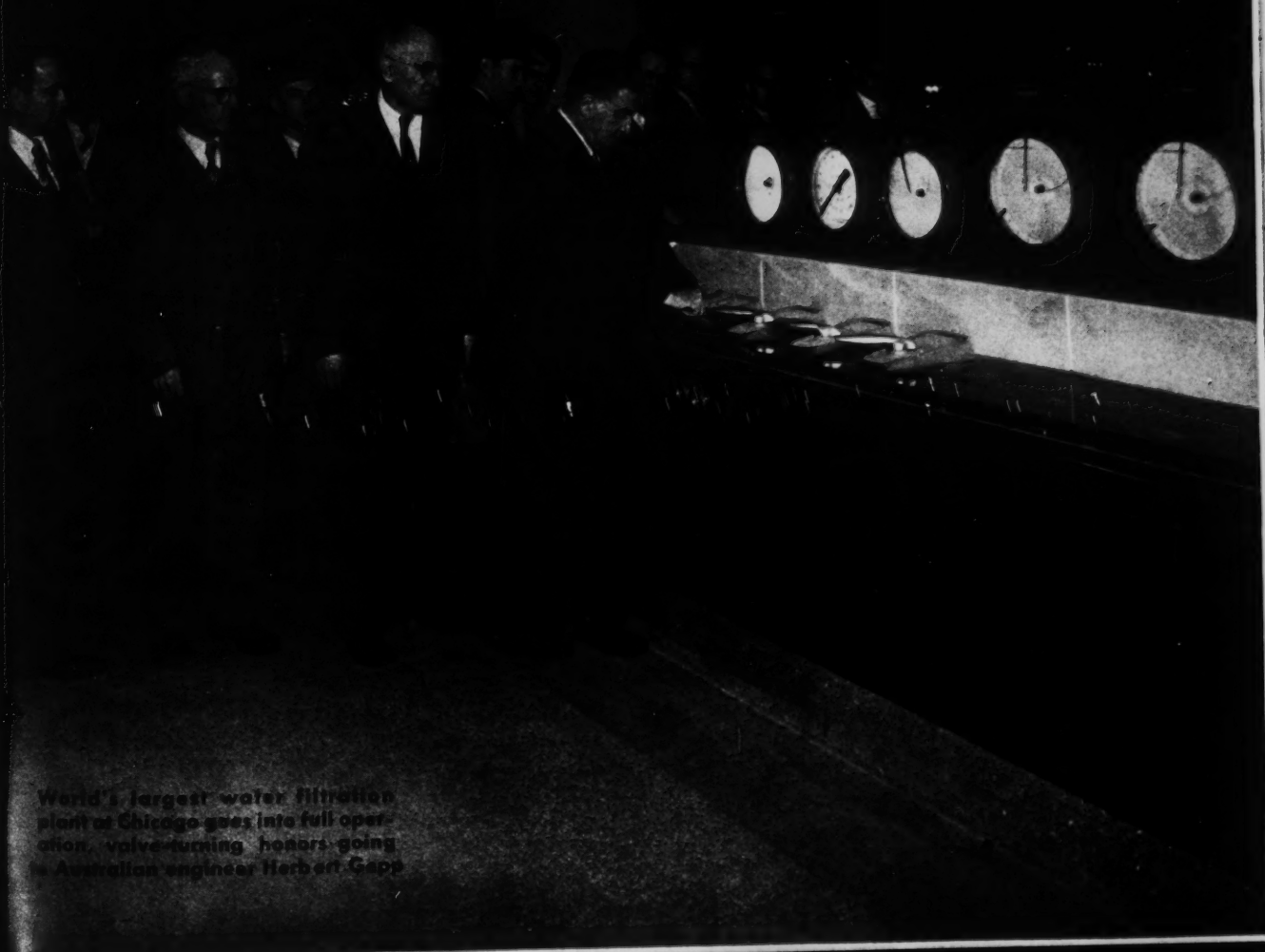
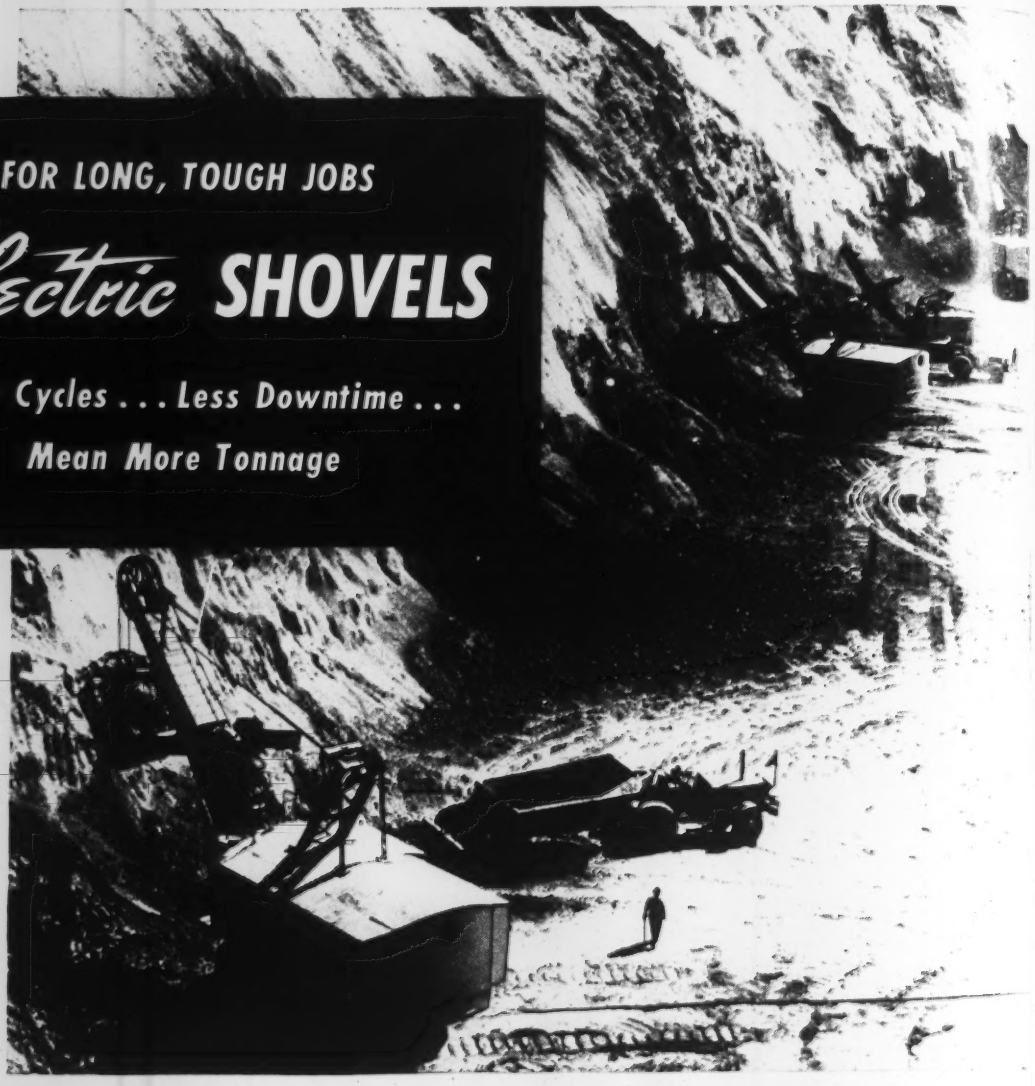


World's largest water filtration plant at Chicago goes into full operation, valve-turning honors going to Australian engineer Herbert Gepp



FOR LONG, TOUGH JOBS

Electric SHOVELS

Faster Cycles . . . Less Downtime . . .
Mean More Tonnage

EVERY contractor has his own way of tackling a big job . . . this ingenuity and resourcefulness keeps him in business. But they all agree on one point: electrically powered shovels and draglines can out-dig other excavators on long, tough jobs. Power shovels produce more because they are fast and flexible, accelerate and decelerate rapidly, move at high speed with light loads. The operator's productivity is high too, because he has instantaneous finger-tip control of all shovel motions . . . no big levers to manage.

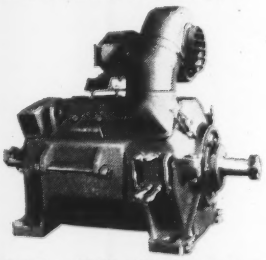
Maintenance on electric equipment for power shovels is negligible; a six-months check-up and occasional brush replacement is all the attention it needs. The motors and control are built to take rough treatment and operate satisfactorily in dusty atmosphere.

The power shovel is just one of many electrified construction tools which are helping contractors produce more for less . . . faster. Whether you buy or build contractors' equipment, ask your G-E representative to show you the inherent advantages of electric drive. *Apparatus Dept., General Electric Co., Schenectady 5, N. Y.*

GENERAL ELECTRIC

655-63

These giant shovels, digging fill for the San Francisco airport, are powered by General Electric motors and control.



G-E Type MDP-600 shovel motors are favorites with excavator builders because they are mechanically strong, require minimum maintenance.

ELECTRIFIED CONSTRUCTION
BETTER PRODUCT ★ LOWER COST

News of the Week

ENGINEERING NEWS-RECORD • DECEMBER 4, 1947 • VOLUME 139 • NUMBER 23

New AAE report suggests wage rate for city engineers

American Association for Engineers studies wages in 180 cities as basis for new equitable rates—Show rate of increase has been small

Recommendations as to the salary range for the principal engineering grades in municipal services are contained in a pamphlet just published by the American Association of Engineers, Chicago. The pamphlet is entitled "Incomes of Professional Engineers in Public Employment." It was prepared by Arthur Richards, engineer-manager of the municipality of Larchmont, N. Y., and a past president of the association.

Information given in the pamphlet as to salaries paid by municipalities in the period 1938-1947 was obtained from questionnaires submitted to the engineering departments of 180 cities scattered throughout the United States. Using this information as a background, Mr. Richards has prepared a "1948 Salary Guide for Engineering Employment" which gives a suggested range in annual salary for each of the nine engineering classifications set up by the AAE some years ago. The proposed rates are shown in one of the accompanying charts. (p. 6)

The AAE classifications of engineering positions for grades 1 to 4 inclusive correspond fairly closely to grades II to V in the classifications of engineering positions approved by the American Society of Civil Engineers adopted in 1944 and published in the August, 1944, issue of *Civil Engineering*.

Increases are slow

Mr. Richards' study of replies to his questionnaire shows that during the early years of the war the increase in pay received by engineers was relatively small and that the larger increases did not come until the period between 1942 and 1947. Fifty percent of the municipal engineers throughout the country were paid 36 percent more in 1947 than they were in 1938. However, some got no increases, while others got as much as 100 percent more than in 1938.

Comparing these increases with the increase in the cost of living as determined by the U. S. Bureau of Labor Statistics shows that the cost of living increased about 60 percent from 1939 to 1947 whereas the salaries of engineers in municipal service, as a group, increased only 36 percent.

(*Continued on page 6*)

Form failure kills 3 at Neversink Dam

Three workmen were killed on the corewall of Neversink Dam near Ellenville, N. Y., when an 18-ft. steel form gave way at the end of the night shift Nov. 29. The form was on a new lift for caisson No. 18, one of 19 caissons being sunk as a cutoff wall for the proposed earth dam, part of the Delaware Aqueduct system of the New York City water supply.

Five men were on the form when anchor bolts on the channel support, fastened to the concrete of the previous pour, either sheared off or pulled out. Two workmen, dumping a bucket of concrete at the time, clung to the bucket and were saved. The other three were buried in the wreckage.

The corewall is being built by S. A. Healy Co.

PRA men to aid Turkish roads plans

A group of eight engineers of the Public Roads Administration left New York City by airplane last week to aid the government of Turkey in planning and constructing a national system of modern highways.

H. E. Hilts, deputy commissioner of the PRA heads the mission, and will remain in Turkey during the preliminary stages of the work. Other members of the group are specialists in various phases of highway work. Accompanying the PRA engineers is Vecdi Diker, engineer of the highway division of the Turkish Ministry of Public Works, of Ankara, who has been in the United States for several weeks arranging for road machinery.

According to a release by the Federal Works Agency, the mission is being sent in response to a request from the Turkish government for assistance in improving its highways. The U. S. aid is to be financed by $5,000,000 assigned by the U. S. State Department from the Turkish aid fund provided by Congress in May of 1947, and most of the money will go to buy machinery from U. S. sources and to cover the expenses of the nine-man government mission.

The mission is to assist Turkey in launching a long-range program of highway construction that will result in a system of all-weather highways covering all parts of the country. Economic development has been badly hampered by the almost complete lack of roads capable of carrying modern, heavy motor traffic.

SEA LEVEL CANAL RECOMMENDED

The Panama Canal must be dug down to sea level to be safe against atomic bombs. The great construction job will cost $2,483,000,000. That is the essence of the report of Maj. Gen. Joseph C. Mehaffey, governor of the Panama Canal Zone, handed to Congress Dec. 1 by President Truman.

Based on two years of extensive engineering studies ordered by Congress in December, 1945, the report is concurred in by the Army, Navy and joint chiefs of staff. It was developed under the direction of Col. James H. Stratton, assisted by an eminent board of consultants. Readers interested in the details of the studies leading up to the recommendations to remove the locks from the famous canal are referred to the 16-page *Engineering News-Record* report in the May 1, 1947 issue, vol. p. 739.

NEWS IN BRIEF

In telegraphic form, here are latest news developments on the engineering and construction front during the week.

Public construction—Bids will be sought soon for the $8,000,000 health center of Ohio State University at *Columbus*. . . . Preliminary work has started on a $10,000,000 transformer station for the Hydro Electric Power Commission at *London, Ont.* . . . A $6,000,000 public works program is scheduled for *Baltimore County, Md.* . . . *Calgary, Alta.*, has approved the erection of a $3,000,000 general hospital and $500,000 for the completion of the transit system.

Private construction—A 1,000-room hotel is to be built on Delaware Avenue, *Buffalo, N. Y.*, by the Ford Hobb Co. Inc. . . . A $150,000 pilot plant for testing new manufacturing methods will be built by Pillsbury Mills, Inc., in southeast *Minneapolis, Minn.* . . . A 2-story addition to its plant costing $750,000 has just been completed by the Reporter-Dispatch at *White Plains, N. Y.* . . . As soon as zoning ordinances are changed to prevent commercial establishments adjacent to the site, the Mormon Church will begin erection of a temple in *Los Angeles, Calif.* . . . The Linde Air Products Co., a unit of the Union Carbide and Carbon Corp. will begin construction soon on a $200,000 plant for production of oxygen and acetylene at *Little Rock, Ark.* . . . International Paper Co. has announced a $25,000,000 construction program for 1948-49. . . . Wallace Barnes division of the Associated Spring Co. will shortly begin building a $2,000,000 plant at *Forestville, Conn.* . . . A cold rolled strip mill will be put up on a 26-acre site at *New Haven, Conn.*, for the Detroit Steel Corp. at a cost of $2,000,000. . . . Work is now in progress on a new land-sea terminal for the Canadian Pacific Ry. at *Nanaimo, B. C.*

Housing—Construction is expected to start within a month on a $15,000,000 housing project in *New Orleans, La.*, where 1,060 apartment units and 500 individual homes will be built by Shelby Construction Co. . . . Cornelius Hall, president of the Borough of Richmond (Staten Island) *New York City* has announced that a $5,000,000 housing project primarily for veterans, will be erected in the South Bend area. . . . Work has started on a $2,300,000 housing project extending from W. Flagler Street to S.W. Fourth Street, *Miami, Fla.* There will be 164 homes, two large apartment buildings and 20 stores.

Flood control—Ohio's third postwar flood control project—the Burr Oak Dam—may get under way in 1948 in Hocking Valley, where a $2,060,000 earthen barrier and concrete spillway across Sunday Creek in Athens County is planned. Col. A. M. Neilson, district engineer at Huntington, W. Va., has completed a report recommending the dam, and state conservation division officials in Columbus, say that bids will be asked soon after Jan. 1.

Labor—Work stoppage at the new Bond stores, Inc., plant in *Rochester, N.Y.*, by plumbers and steamfitters has spread to the addition being erected at Strong Memorial Hospital where union workers also have gone out. The dispute centers around supervision and maintenance of so-called temporary heating equipment. . . . Workers in the construction and building trades at *Seattle, Wash.*, will obtain a 13-cent hourly wage increase Jan. 1 under a cost-of-living escalator clause in an agreement between the employers and the unions. . . . The number of apprentices in the building trades at the end of October was 109,738, the Department of Labor reports.

***Oklahoma Bailey** — Home from a varied war service that included crossings of German rivers, this 750-ft. long Bailey structure now temporarily spans the North Canadian River at Eufaula as a link in U. S. Highway 69 at a main north-south route in eastern Oklahoma. The original bridge was washed out in 1945. With the opening of a new permanent highway bridge, the Bailey structure is now scheduled for dismantling and storage for emergency use by the state highway department.*

THE COVER PICTURE

While city officials look on, Sir Herbert Gepp, Australian engineer, opens the valves for the final two of 80 filters installed at Chicago's $24,000,000 South District filtration plant (*ENR* June 18, 1942, vol. p. 997).

The plant has filtered all South District water since May, 1947. Actual capacity of the filters considerably exceeds the nominal rating of 4 mgd. per unit or 320 mgd. for the fully-operative plant.

Watching Sir Herbert are, left to right: H. H. Gerstein, chief filtration engineer in charge; John R. Baylis, engineer of water purification, and W. W. DeBerard, Chicago city engineer.

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OK new Columbia Basin work

Early construction of Hungry Horse, Foster Creek, Detroit, and McNary dams in the Columbia River basin, plus additional power installations at Grand Coulee, Rock Island, and Kerr dams, has been recommended by the Columbia Basin Inter-Agency Committee and these recommendations have been accepted by the Federal Inter-Agency River Basin Committee, the latter organization announced last week.

These groups are also of the opinion that the construction of Hells Canyon, Wolf Creek, and Boundary dams in the basin should be scheduled ahead of the improvement at the Dalles, which has not yet been authorized by Congress, and the Lower Snake projects, already authorized.

The recommendations of the two committees follow much work to determine how best to protect the fishing and resources on the Columbia as that stream is developed to meet increasing power demands and to benefit navigation. Following a request of the Department of Interior that the entire program be reviewed critically, the regional committee held extensive hearings and final action was taken at a meeting Oct. 8, 1947. At that meeting representatives of the Departments of the Interior, the Army, Agriculture, and Commerce, the Federal Power Commission, the Bonneville Power Commission and the states of Idaho, Oregon and Montana were present.

Neither the regional committee nor the federal committee has any administrative authority, but both are effective in obtaining cooperation and coordination among federal, regional and state groups. Members of the federal committee are: E. H. Wiecking, Department of Agriculture, chairman; Lt. Gen. R. A. Wheeler, Chief of Engineers, U. S. Army; N. L. Smith, Federal Power Commission; H. B. McCoy, Department of Commerce, and Wm. E. Warne, Department of Interior.

Much work already done

Much has already been done on the construction projects recommended for advancement by the two committees. For example, large contracts have already been awarded by the Corps of Engineers for the McNary project (*ENR* Nov. 6, 1947, vol. p. 633). This structure will have a crest length of 7,400 ft., and is scheduled for completion in 1952 with 828,000 kw. of the total of 1,380,000 kw. of generating capacity planned to be operating at that time. The spillway of the dam will have a total capacity of 2,000,000 cfs.

Congress has already appropriated $5,250,000 for preliminary construction on Detroit Dam, a $35,000,000 project on the North Santiam River. Much work on the relocation of highways and railroads is already in progress, but no contracts have been awarded for the dam proper.

Foster Creek Dam consists of a structure planned for the main stem of the Columbia downstream from Grand Coulee. This Army project is estimated to cost $172,000,000 and to date only $600,000 has been awarded for the job, this money having been earmarked for preliminary planning.

The Bureau of Reclamation is building Hungry Horse Dam, located on the Flathead River in Montana to regulate the flow above Grand Coulee Dam. Work also has begun on this $48,000,000 project.

Rock Island and Kerr dams are nonfederal projects. They were built primarily for power development.

Begin construction on Chain of Rocks Canal

Engineers and workmen last week had started work on the first phase of the 8-mile Chain of Rocks Canal along the Mississippi River, across the river near St. Louis, Mo. (*ENR* June 12, vol. p. 920.)

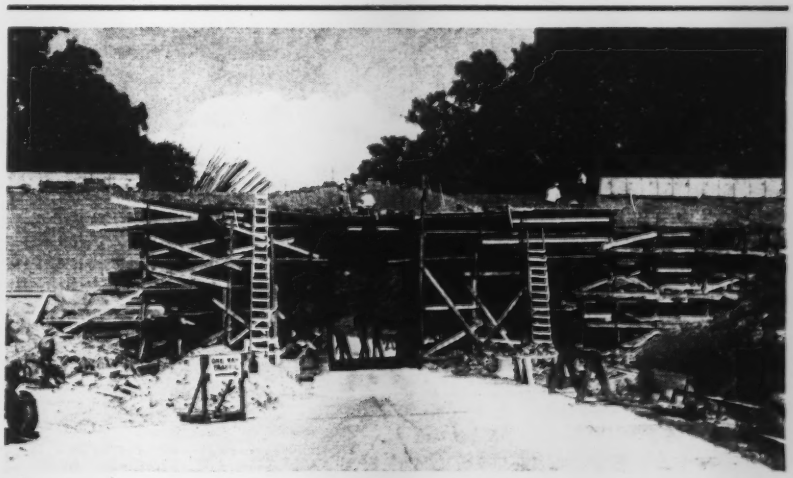
With the aid of a giant lock the $16,635,000 canal project will eliminate the last major obstacle to navigation in the 1,100 miles of river from Minneapolis-St. Paul to the Gulf of Mexico. Col. R. E. Smyser, Jr., Army district engineer, said the project will provide a Mississippi River waterway of a dependable depth of 9 ft. from New Orleans to the Twin Cities, and to the Great Lakes by way of the Illinois River. The new canal will permit great tows to by-pass the dangerous Chain of Rocks Reach.

The main lock of the canal will be 1,200 ft. long—200 ft. longer than the Panama Canal locks—and 110 ft. wide, with 92-ft. high sidewalls. There will also be a 600-ft. auxiliary lock. The bottom width of the canal will be 300 ft. and the top 550 ft. Total excavation required will be 27,700,000 cu. yd.

Under the supervision of the Army Engineers, the work is being done by the River Construction Corp., a group of three New York and two Minneapolis companies, and one Boise, Ida. company.

Plans for Arkansas levee

The Little Rock District, Corps of Engineers, meanwhile, carrying on other river work, is proceeding with preliminary plans for the West-of-Morrilton levee project and will launch construction whenever funds are made available. A committee of proponents was in Little Rock recently to confer with Col. Gerald Galloway, Little Rock district engineer. The Morrilton project would provide flood protection for farm lands upstream on the Arkansas River from that city.



***Beauty Treatment**—To produce a crossing of pleasing appearance in conformity with other structures over the Colonial Parkway, this barrel-arch bridge carrying Virginia State Route 168 over the parkway near Williamsburg is being faced with special brick of a size used in colonial times. The bridge carries a 28-ft. roadway, with a 28-in. sidewalk on either side. The Virginia Department of Highways built the structure, according to plans prepared by the Public Roads Administration and the National Parks Service.*

DEVELOPMENTS BEYOND U. S. BORDERS

Digested from reports by Engineering News-Record correspondents and the McGraw-Hill World News Bureau

India invites U. S. contractors to bid on hydro project—Push construction of Moscow subway—Venezuela to spend $60 million for port construction—Australia begins work on Mundaring Weir

India—U. S. contractors are now being invited by the India Supply Commission to submit their qualifications for bidding on construction of the immense reinforced concrete Ramapadasagar Dam on the Godavari River in Madras Presidency.

This structure will be a part of the previously-announced Godavari basin scheme (*ENR* May 8, vol. p. 776) that will provide power and irrigation water for a large section of central India.

The dam structure will have a maximum height of 428 ft., and a crest length of 6,600 ft. It will require about 500,000 cu. yd. of rock excavation, and 20,000,000 cu. yd. of other excavation. Contents of the dam, which will create a reservoir covering 527 sq. mi., will total 8 million cu. yd. In excavating to rock for the structure, workers may have to dig down as much as 200 ft.

Six 33,000 kw. turbines will be installed. India's government officials said that between 8 and 9 years will be allowed for construction, since construction methods must provide protection against high flood discharge. The maximum possible flood is estimated at about 3,000,000 cfs.

Contracting firms wishing to bid on the dam, with reference to detailed plans and specifications to be supplied later, may furnish a certified statement of their qualifications in triplicate to the India Supply Commission, 635 F St., N.W., Washington 4, D. C., before Dec. 15, 1947.

Colombia—Now under construction to supply urgently needed power for twelve cities in southern Colombia is the Anchicaya hydro-electric project, in the central plateau.

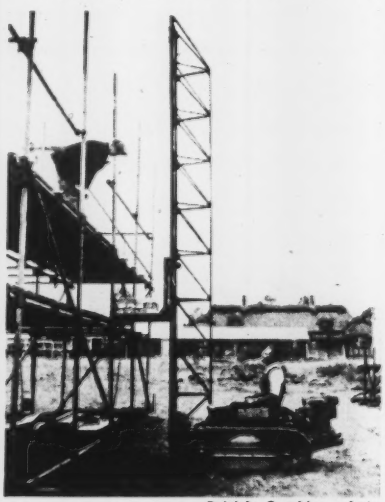
Privately financed, the project is owned by a stock company known as Central Hydroelectrica del Rio Anchicaya, headed by E. Santos Potess, president and chief engineer. A $5,000,000 project, at present about one quarter of the funds is available for construction. The company, though a private concern, is owned by the twelve municipalities, the state governments of the area and the national government, which has subscribed 51 percent of the capital.

The dam will be a concrete arch structure 150 ft. high and about 520 ft. long. The eventual installed capacity of 88,000 kw. will be fed by a diversion tunnel, already finished, which is to be capable of handling a flow of 200 cubic meters per second.

England—The North of Scotland Hydro-Electric Board recently confirmed its plan to build two additional hydro projects at Storr Lochs and at Glen Lussa, to cost a total of about $2,200,000. In both instances, a series of small dams will be used to feed power stations.

Irrigation . . . .

Australia—Preliminary construction work is now in progress to raise the crest of western Australia's Mundaring Weir dam by 32 ft. to reach a 132 ft. over-all height. The move will increase capacity of the reservoir to 15 million gallons from its present 4.6 million gallons (*ENR* Aug. 28, vol. p. 289).



British Combine photo

Little Helper—Among the many almost lilliputian machines being developed and tested by the British Ministry of Works for use in small building construction is this 6 hp. tractor, here equipped with a light aluminum-alloy mast and a winch, to serve as a builders' platform hoist. Tests are being undertaken at the Ministry's field headquarters near London.

The 44-year-old dam, built to supply water through a 380-mile conduit to the Kalgoorlie gold fields, is of concrete-gravity type, with over-flow sections. The downriver face will be extended by 50 ft. at the bottom, tapering to 32 ft. over the crest. About 90,000 cu. yd. of concrete will be used in the work, more than doubling the original mass of the structure.

England—Recently opened in order to more than double the available storage supply for the city of London was the new Staines reservoir, owned by the Metropolitan Water Board. An earth-fill structure, the dam has a center core of London clay, is more than 50 ft. high and provides a storage reservoir of 4,466,000 gallons. It is fed by a pumping system drawing water from the Thames River.

Transport . . . .

Russia—Moscow subway builders, engaged in cutting two 550-ft. tubes under the Moskva River as part of a new 12-mile subway expansion program, have found what engineers say is "complicated" geological substrata underneath the river, and pumps are being used to clear an estimated 84,000 cu. ft. of water per hour from the workings.

Six under-river crossings are now under construction, and one of these has been holed through.

Netherlands—One of the many improvement programs for Schiphol Airport, near Amsterdam, has been completed with the lengthening of the main runway to 7,500 ft. Dutch engineers continued the work started by the Germans during their occupation of Holland, when they lengthened the runways from an original 3,000 ft. to slighlty more than 5,000 ft.

Puerto Rico—The Department of the Navy has registered opposition to the construction of the proposed Isla Verde international airport, near San Juan, planned by the Puerto Rican government to cost more than $15,000,000.

Rear Admiral Daniel E. Barbey, commander of the Tenth Naval District, was reported to have objected to the construction of the airport because the field might interfere with the operation of a $5,000,000 Navy radio station near the same site. The station is described as

the Navy's communication center for the entire Caribbean area, and plans called for one runway to be located about 1,500 ft. from the radio station site. Adm. Barbey said that such a project would create noises and interference to radio operation that might force the Navy to abandon its radio installation.

Brazil—The Chamber of Deputies of Rio de Janeiro has approved a bill authorizing construction of a subway for the city. Although no definite plans have been announced, it is believed that the underground railroad will be built on the pattern of the Paris (France) "Metro" system.

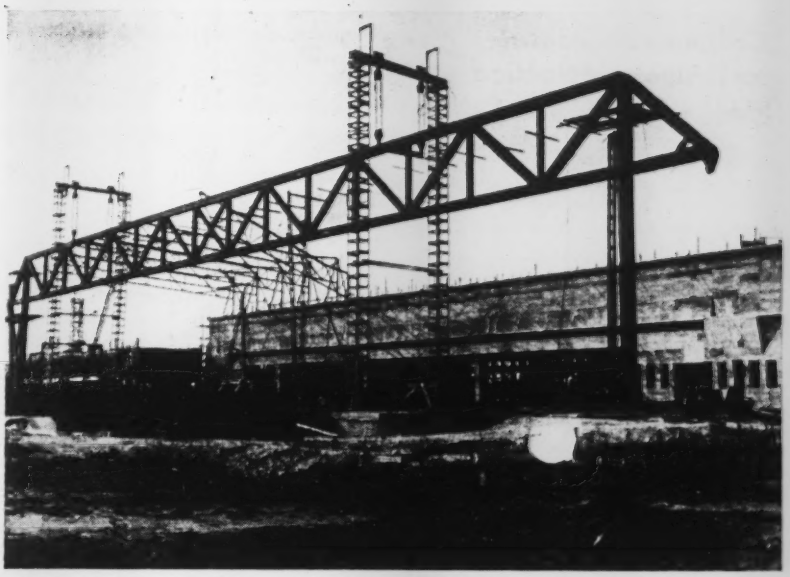
Industrial Developments . . .

England—A new steel works, being built at Port Talbot in Wales, will cost $120,000,000, cover some 600 acres of land and involve leveling of sand dunes, filling in marshes, lakes and pastures. When completed, output will reach 1,000 tons of steel per day.

Argentina—One of the largest cutterhead suction dredges in the world was accepted by Argentine government officials at New Orleans, La., recently. The 3,100-ton vessel, which has a capacity of 5,000 cu. yd. an hour, represents an investment of $4,200,000, and was built by the Ingalls Shipbuilding Corp., of Pascagoula, Miss. Two hundred feet in length and 50 ft. in beam, the dredge has 10,000 hp. and will be used in channel work on the River Plate for construction of a public beach at Buenos Aires.

British Combine photo

Power Station Site *— Workers clearing away old buildings to make way for the new $23,000,000 Bankside power station along the Thames River in London, England, have a fine view of historic St. Paul's as their work progresses. The power station is a part of a current program to increase England's power supply to more than double its present capacity.*



Expand Danish Airport*—A current expansion program at Kastrup airport, near Copenhagen, Denmark, includes construction of three new radiant-heated hangars; lengthening of the three runways to a maximum of nearly 7,000 ft., and construction of a central power station and other structures. Construction of a new administration building will be delayed pending a drop in current high costs.*

Turkey—A building boom looking toward expansion of the population of Ankara, Turkish capital, from its present 250,000 to 600,000 is under way. In the last 10 months 484 building permits have been issued, the structures including 80 apartment houses, 8 hotels, 2 motion picture theaters, 4 business buildings and one school.

In addition the city's septic tanks and cesspools are being replaced with sewers. In the middle of the capital a park with a large artificial lake is almost completed, while dominating everything is the enormous, half-constructed new Grand National Assembly Building.

Turkey—The Turkish government has announced award of a contract to the Western Knapp Engineering Co., a division of Western Machinery Co. of San Francisco, Calif., for construction of two large ore dressing plants.

Ports and Harbors . . . .

Venezuela—The Venezuelan Ministry of Finance has presented the National Assembly with a plan for spending about $60,000,000 on port work along the Venezuelan coast. The work would include dredging, port installations and port housing.

Work to be covered includes improvements of the port areas at La Guaira, Maracaibo and Cuanta, canalization of the entrance to Lake Maracaibo and financing part of the housing program in those same areas.

The original program, presented to the assembly in mid-October, was approved, but financing arrangements remained to be made.

The ministry pointed out that the nation's foreign trade needs are still far above the capacity of her ports, and that the port bottleneck is also partly responsible for the increases in prices of goods to consumers. Officials said that despite the current high building costs the investment will be repaid by savings in prices of imported goods to Venezuelan consumers.

At the present time, Stevens & Company of Venezuela, and the Smith Engineering & Contracting Co. of Venezuela are at work on breakwaters and harbor installations under a contract with the ministry. The Frederick Snare Corp. has received a contract for dredging and filling in the La Guaira area.

Construction of a 35 ft. wide channel into Lake Maracaibo is expected to permit the passage of tankers with a capacity of 115,000 barrels instead of the 40,000 or 50,000-barrel ships now in use by the major oil companies that draw a large part of their supplies from the lake.

Company defies state on bridge construction

Despite certain disapproval of the Washington State Highway Department, the Puget Sound Navigation Co. of Seattle has announced it is proceeding with plans for construction of a toll bridge across Agate Pass between Bainbridge Island and Kitsap Peninsula.

When the ferry company first announced its plans for the bridge, the State Toll Bridge Authority said that under existing state laws no private toll bridge can be constructed without approval of the state director of highways, as well as that of the U. S. Army Engineers. Clarence B. Shain, state highway director, added he would not approve plans for a private bridge and announced the state would build the new structure.

Capt. A. M. Peabody, president of Puget Sound Navigation, declared, however, that "as far as we can find out, Department of the Army approval is the only authority needed, excepting for State Department of Transportation approval on tolls, which will come up later."

The company plans to draft an application for Army approval as soon as the New York firm of Sanderson & Porter has completed a report on potential traffic and revenue.

The state already has applied to the Army for permission to build, Director Shain has announced, and will start designing the bridge as soon as the Army grants the application.

Seek construction bids for Nebraska dam

A call for bids for the construction of Medicine Creek Dam in the Republican River valley has been announced by the Bureau of Reclamation. The dam is to be constructed six miles north of Cambridge, scene of a devastating flash flood last June 22, which took 13 lives and caused $16,000,000 damage.

Medicine Creek Dam is to be a rolled earthfill structure 102 ft. high with a crest length of 3,600 ft. Total excavation will amount to 3,500,000 cu.yd., the embankment will require 2,500,000 cu.yd. of fill. Included in the construction is a concrete spillway at the left abutment of the dam and a 7.5-mile gravel-surfaced access road.

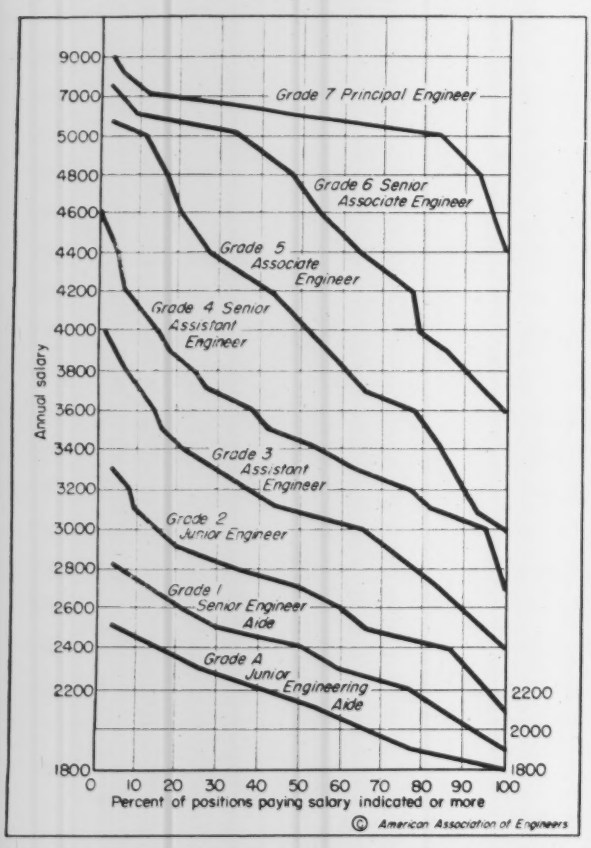
Salaries for municipal engineers covered in AAE report

(*Continued from page one*)

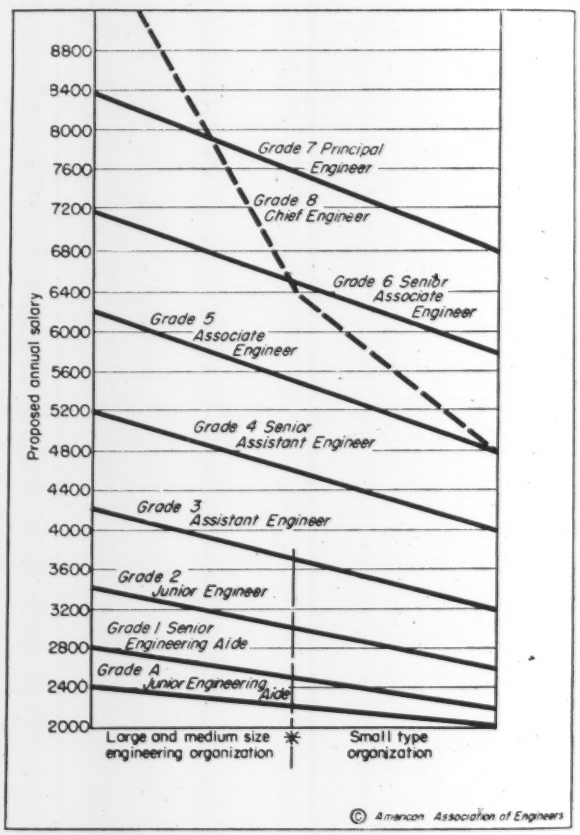
A more detailed study of salaries paid the chief city engineers indicates that the best salaries are paid in the West. Fifty percent of the chief engineers or city engineers in western states receive salaries of over $6,000. Corresponding rates are as follows: North-East, $5,200; South, $4,670; North-Central, $4,400.

Mr. Richards has included recommendations as to how to use this pamphlet in getting pay increases in municipalities where salaries are shown to be out of line with current needs.

Copies of the pamphlet can be obtained from the American Association of Engineers, 8 So. Michigan Ave., Chicago 3, Ill. for $1.00.



Salaries of municipal engineers throughout the United States in 1947, based on survey of 180 municipalities.



Salary guide for engineering employment prepared by the American Association of Engineers for the year 1948.

Third of federal-aid highway money obligated, road users group reports

National Highway Users Conference reports $546 million still available—States report progress on road programs

Thirty-two percent of the federal-aid highway funds authorized under the 1944 Federal-aid Act were under contract as of Oct. 1—24 months from the time the first funds were made available to the states, the National Highway Users Conference said last week. The dollar value of contracts awarded was $471,000,000 in federal funds for a total of $934,000,000 of road work.

Of this amount, projects completed accounted for $118,000,000 in federal funds (or 8 percent of apportionment to states) with a total cost of $226,000,000. Included in the total contracts awarded were projects actually under construction with a total cost of $611,000,000, the organization said.

Projects totaling $904,000,000 in federal funds had been approved on Oct. 1, leaving an unprogrammed balance of about $546,000,000 in federal funds available for additional projects. The total cost of programmed projects (including state matching) was $1,793,000,000 for 48,000 miles of construction.

Illuminating the national overall figures were a series of reports last week from state highway organizations as they made plans for additional needed road construction projects. These included:

H. E. Bailey, Oklahoma State Highway Director announced plans to promote Oklahoma's farm-to-market road program. Two county commissioners, working on a volunteer basis will consult with county boards on the details of initiating projects. Meanwhile, Bailey said the highway commission has completed $13,468,311 road and bridge building since it assumed office early last March.

Projects completed during October amounted to $2,704,478.

Developments in New York

Discussing New York State's program of arterial development within cities, Charles H. Sells, Superintendent of Public Works, said he is hopeful that the next legislature will make it permissible in urban areas to buy dwellings, transplant them to suitable improved sites and resell them, thus preserving their use and assessment value. He reported that New York State has a 13-year, $2,000,000,000 highway program, including the 486-mile cross-state "Thruway" and other public works, and added that his department is seeking to procure 2,500 additional engineers.

The Florida State Road Department awarded contracts for $25,777,927 on 760 miles of road and bridge construction during the first 10 months of 1947, Chairman Bayless reported.

Only $20,627,829 was set up in the record $50,000,000 budget for the projects, but road department officials said increased revenue from gasoline taxes will offset the deficit.

Bids totaling an estimated $13,350,000 for construction of the proposed bridge across lower Tampa Bay were opened recently by the St. Petersburg Port Authority. The bridge would span the bay between Maximo Point in Pinellas County and Sneads Island in Manatee County.

Set uniform standards for Oregon

In cooperation with engineers of the Automotive Safety Foundation, an advisory committee named by the Oregon legislative interim-traffic committee has undertaken the task of establishing a set of uniform standards to determine traffic movement requirements.

Members of the 5-man traffic advisory committee are: Fred Fowler, Portland traffic engineer; Orin King, Pendleton city manager; Robert Glenn, professor of highway engineering at Oregon State college; F. C. Crandall, traffic engineer for the state highway commission, and Howard Bufford, planning consultant.

First on the advisory committee's program will be an inquiry into what facilities are needed to handle adequately existing and future traffic.

The legislative interim traffic committee is now engaged in a series of hearings throughout the state in preparation for the allocation of funds under a 3-year construction program which calls for expenditure of $50,000,000.

The foundation's Oregon survey follows a similar one in California and will be followed by a Washington survey, with the idea of coordinating the highway systems of the Pacific coast.

Study Washington highways

Directed by the 1947 Washington state legislature to develop a recommended long-range program to meet present and future highway needs, a fact-finding committee is conducting a study of the state's highway, road and street systems.

In order to build a foundation of engineering facts for its recommendation, the committee has engaged the Automotive Safety Foundation of Washington, D. C., to make a survey. A. Donald Kennedy, highway engineer and vice-president of the foundation, is directing the survey.

C. W. Martin, Walla Walla city commissioner, is chairman of the engineering committee representing cities.

Start Bridge Job—Construction crews have started work on a bridge to carry South Carolina State Route 45 across the canal connecting Pinopolis and Wilson Landing reservoirs of the Santee-Cooper Project. High piers to provide navigation clearance, and the use of three truss spans of an old bridge will feature the work. McMeekin Construction Co., Cheraw, S. C., is foundation contractor; Boyle Construction Co., Sumter, S. C., holds the 270,000 cu-yd. grading contract; and work is being supervised by W. J. Gooding, state bridge engineer.

HIGHLIGHTS OF MUNICIPAL DEVELOPMENTS

Summarizing current activities in city engineering and construction throughout the country.

Fresno offered gift of underground parking lot—Many sewage works plans reported—San Francisco gets bid on reclamation work—Massachusetts town seeks power project—Urge $18.5 million bridge and tunnel at Norfolk, Va.

An outright gift worth $1,500,000 has been offered to the city of Fresno, Calif. in the form of a 753-car underground garage to be built almost entirely under one of the city's principal thoroughfares.

The plan—presented by a group of private citizens who already have donated nearly $10,000 for preliminary work—calls for construction of a two-level garage, complete with all services for motorists, on the pattern of San Francisco's highly successful Union Square Garage.

With city commission approval virtually assured, plans are being made for construction in a six-month period, but almost a year would be required to complete engineering details and prepare cost estimates.

Present estimates are for 103,000 cu.yd. of excavation, and the flat slab reinforced concrete construction will require about 16,300 cu.yd. of concrete and 1,100 tons of steel for reinforcing.

No elevators are planned, access being provided to both levels by ramps on either side of Van Ness Avenue. A central concourse will be located on the first level to facilitate loading and unloading, and to provide space for offices, lobbies, and other facilities.

While Fresno considers this project, Boston, Mass., city officials look to the coming Christmas shopping rush as a final test for that city's $5,000,000 off-street parking program. The city began razing buildings on three downtown sites some weeks ago, and expects to have at least one of the areas—a 48,000-sq.ft. plot between Winthrop Square and Federal Street—ready well before the Christmas rush.

Ask power study

Holyoke, Mass., has applied to the Federal Power Commission for a 36-months permit to study potential hydroelectric projects on the Connecticut River between Enfield, Conn., and Holyoke.

The proposed project would provide power for Holyoke, South Hadley, West Springfield, Agawam, Westfield, Chicopee and Springfield.

Work would include a dam and power station to produce an initial 44,000 kw. The Holyoke municipal gas and electric department, was left with almost no hydro power as a result of a recent extended drouth period. Industry then turned to the more reliable steam plants. In view of this situation, Mayor Henry J. Toepfert of Holyoke said the city's application was a move to protect its interests.

The Army Corps of Engineers is now conducting a study of the Connecticut River to determine the feasibility of extending navigation from Windsor Locks to Holyoke. Ten years ago the engineers completed a survey and recommended construction of a hydroelectric plant at Windsor Locks. The project was killed by Congressional action.

Highway planning

Plans and actual construction of expressways and superhighways to carry traffic through congested business areas were pushed forward last week.

At New Orleans, La., the state highway department and the city administration concluded a contract to apportion the cost of closing and filling in the old New Basin Canal to provide additional trafficways into the city's business district.

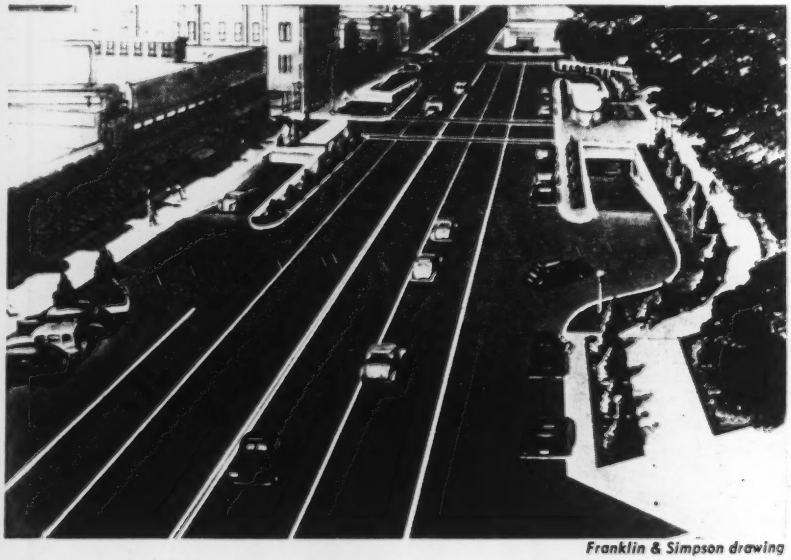
Houston, Tex. officials noted that nearly $9,000,000 will be under contract in the city shortly to pay for a series of expressways cutting across the business district.

Baltimore, Md., was warned it faced federal disapproval for what was termed delay in getting a proposed expressway program under way. The Federal Public Roads Administration warned the city of the danger of losing funds by its delay in taking advantage of a $1,200,000 tentative appropriation for Baltimore roads. The proposed express road would cut across the city from southwest to northeast, according to present plans.

Close bidding

Members of the State Harbor Commission, holding a bid opening at San Francisco, Calif., recently, reported a remarkable series of bids in which the differences were extremely low.

The occasion was an opening of bids on reclaiming and improving six acres



Franklin & Simpson drawing

Underground Gift—An outright gift of a $1,500,000 underground parking garage to be built under a principal streets has been offered to Fresno, Calif., by a group of citizens. Following the general pattern of San Francisco's Union Square garage, the new accommodation would be built under a 2-block stetch of Van Ness Avenue as a 2-level structure.

of land over and around Mission Rock, in San Francisco Bay. On this project, the work includes manufacture and driving of 2,924 reinforced concrete piles, construction of 375,000 sq.ft. of reinforced concrete deck, together with railroad trackage, water lines, electrical conduits and other accessories.

Bid totals were: Clinton Construction Co. $2,367,500; M. H. Golden Construction Co., $2,369,500; Duncanson-Harrelson Co. and Stolte, Inc., $2,377,500; Raymond Concrete Pile Co., $2,398,517; B. C. Gerwick, Inc., $2,411,117; Guy F. Atkinson Co. and Charles L. Harney, Inc., $2,840,029; Johnson Western Co. and United Construction Co., $2,881,798; and M & K Corp., Macco Corp. and the George Pollock Co., $3,366,000.

The low bid thus was less than one-tenth of one percent below the next bid, and only one of the eight bids was more than 22 percent above the low bid.

Water, sewer plans

The Citizens' Committee of Tulsa, Okla., recently approved recommendations for a bond election on a $17,865,000 program to improve the city's water system and extend its storm and sanitary sewer system. The project would include the $15.000,000 Spavinaw Lake Dam, $1,148.000 worth of storm sewers and nearly a million dollars worth of sanitary sewers.

An exhaustive investigation into the sewerage and drainage problems of Wilmington, Del., will be made as a preliminary to construction of a $6,000.000 disposal plant, city officials said. Result of recommendations by the Interstate Commission on the Delaware River basin, and city and state departments, the investigation will cover all phases of the project.

The drowning of a five year old child after a fall through an open sewer manhole at Seattle, Wash., led city officials to consider the use of locking covers on new manhole installations. It was believed that pressure created by water backing up in the 20 in. pipe had pushed off the manhole cover, which weighed more than 90 lb.

Hopes of Salt Lake County, Utah, for an early start on its multi-million dollar suburban sewer project were hard hit recently, when bid openings showed the lowest of two overall proposals was about $500.000 higher than engineers' estimates. Lowest bidder on the complete project was Morrison-Knudson Co., Inc., and Winsor Construction Co. with a bid of $3,135,000. The only other overall bid was nearly a million dollars higher.

At Miami, Fla., city officials were informed that contractors are ready to start work immediately on a $5,600,000 sanitary sewer extension project.

The Los Angeles county board of supervisors received plans and specifications for the first of a series of public incinerators. The first $800,000 structure will be financed by general county funds and constructed early in 1948 to serve the southwestern section.

Proof—When Carl Kvistad (right) told the Astoria, Ore., city council that one of the city's bridges was in such bad shape that he could drive his fist through the 12 x 12-in. columns supporting the span, councilmen scoffed. Two weeks later, Kvistad appeared with the above photo of himself—duly poking his hand through a support on the structure. The council approved replacement of 15 of the heavy timbers.

Find revenue sources

Hundreds of thousands of dollars are owed by contractors to the city of Baltimore and the state of Maryland in fees for state licenses which they have failed to obtain, William J. Muth, vice president of the Baltimore City Council, said recently.

Other city officials immediately looked upon collection of the money as a means of balancing the city's 1948 budget.

Mr. Muth reported that he made his discovery while preparing a city ordinance to require all builders and contractors to be bonded and licensed by the city. He found that state law requires any contractor to obtain a state license and pay $15 annually if his gross business totals $5,000 a year or more. The law, in effect since 1916, provides a penalty of 10 percent a month added to the cost of the licenses for failure to obtain them at the proper time.

Meanwhile, Seattle, Wash, city council looked with pleasure on a fund of $6,265.000 in cash which it had built up in the past three years to finance its postwar development program. The cash fund does not include the millions being spent by the city's lighting and water departments out of their own revenues. From this fund the Council has appropriated $3,987,000 for capital investment projects, betterments and deferred maintenance; and allocated $1,514,000 to other work.

Fight gas heat ban

The City of Akron, Ohio, has asked the Ohio Supreme Court to set aside an order from the Ohio Public Utility Commission forbidding installation of gas furnaces in homes. Suit was brought by a group of heating contractors, and was filed in the city's name by permission of Law Director Roy E. Browne.

The suit grows out of attempts by the East Ohio Gas Company to limit new heating installations until it can build new pipelines where needed.

Urge $18 million tunnel

The Elizabeth River Tunnel Commission, at Norfolk, Va., recently released plans for an $18,500,000 bridge connecting Norfolk and Berkley, and a tunnel from Berkley to Portsmouth.

The report, prepared by the New York consulting engineering firm of Parsons, Brinkerhoff, Hogan & MacDonald, with the J. E. Greiner Co. of Baltimore, urged that the bridge and tunnel carry four lanes of traffic to replace the existing ferry lines carrying automotive traffic across the river.

Phoenix "Sky Harbor" to be started at once

Construction on the first stage of Phoenix Sky Harbor's $5,500,000 development program (*ENR* Nov. 14, 1946, vol. p. 646) is expected to start by the end of the year. John L. McAtee, chairman of the municipal aeronautics commission, reported, and plans call for the expenditure of about $1,300,000 in the next year.

Bids are scheduled to be called about Dec. 15 for the initial construction project, the clearing of 236 acres of new land to allow building of a 6,000-ft. east-west runway about ¾ mi. south of the present east-west strip.

This year's construction program, part of a 3- to 5-year master plan, includes the new east-west runway, a new northeast-southwest runway 5,500 ft. long and the rebuilding of 4,000 ft. of the present 6,000-ft. east-west runway to fit it for use by today's heavier planes.

The new runways are designed for loaded planes weighing up to 120,000 lbs. Heavier planes can be accommodated if such landings do not exceed 20 percent of the total traffic. Plans call for a drainage system which will take care of flash storms up to 1 in. per hour over an extended period and up to 3½ in. per hour for short storms.

The present plan differs from one proposed about a year ago in that it calls for a total of 918 acres instead of the 1,100 originally believed necessary. To meet high land costs the port was redesigned to provide exactly the same facilities in a smaller area. Johannessen and Girand are the designing engineers.

Dealers' newspaper ads fight costly plumbing

Blaming speculative dealers in the pipe and plumbing supply business for home plumbing installation cost increases as high as 25 percent, Phoenix, Ariz., equipment dealers have carried to the city's newspapers their fight against progressively higher prices.

Caught between the crossfire of a tremendous building boom and a dearth of supplies, the dealers reported they either were unable to receive pipe in quantities to meet the demand, or were forced to pay twice the "fair price" and often had to purchase "extras" in order to obtain the basic items.

Half-inch galvanized pipe with a "fair" value of $8 to $9 per 100 ft. and ¾ in. pipe with a Phoenix price of $10 and $11 per 100 ft. are bringing $20 and $30 respectively, dealers claim.

Often pipe is available only if bought in combination with "inferior" bathroom fixtures, dealers said.

The plumbing men reported that toilets ordinarily costing $40 have been offered by "brokers" at $62.50. Other plumbing appliances such as bathtubs, sinks and lavatories are in good supply.

The "brokers" answered charges by claiming their services were being put to good use.

OOPS!

Ohio legislators were preparing to return to Columbus for a special session last week, after it was discovered they had diverted all of the State Highway Department's $9,000,000 fund for new road construction to other purposes. Attempting to set aside some gasoline-tax money for municipal street and sidewalk work, the legislature actually took some $6,000,000 from expected highway funds, and directed that all other money in the department's hands be used only for maintenance and repair, according to a state Supreme Court decision. Gov. Thomas J. Herbert recalled the red-faced solons.

An unusual boost for the engineering profession came from an unexpected quarter when Dr. James F. Bender, New York psychologist, advised American women that engineers are better matrimonial catches than, say, salesmen. Engineers as a group are stable, unemotional, inclined to study situations beforehand, said Dr. Bender. Salesmen aren't. The doctor made no comment on "stable, unemotional" romance.

Farmers of the Samaria Irrigation Co., of Malad, Idaho, wanted a new dam across the Malad River—the dam to be earthfill, 45 ft. high, about 370 ft. wide at crest (including spillways). Federal engineers estimated such a job would cost in the neighborhood of $500,000. The farmers balked. They acquired land for $10,000, and themselves let construction contracts totalling $49,000. The job was completed in 40 days, and the reservoir is now being filled.

Legal aides of the San Diego, Calif., Harbor Commission, misplaced a comma and a zero, thus misplacing some 592,000 cu. yd. of excavation for a proposed new pier. Bid forms called for 65,800 cu. yd. of excavation, instead of the correct 658,500. City councilmen had to reject all bids.

Threaten crack down on stream polluters

The Indiana State Stream Pollution Control Board is getting ready to crack down on flagrant violators of stream pollution regulations, board members said last week.

Citing increasing population, the body scored cities and industries that have delayed complying with its orders on "pretexts", and said forty-two of the worst offenders have recently been given orders to cease emptying raw sewage into streams. In most cases they have asked for an extension of time pleading shortages of money and materials.

Indianapolis suffers because of upstream pollution of the White River. Noblesville, a fast-growing industrial city north of Indianapolis, dumps raw sewage into the river only a few miles above the intake of a canal which provides part of the drinking water for Indianapolis. Noblesville has reported plans for a sewage treatment plant, but has taken no definite action on its construction, the board reported, commenting that taxpayers object to additional tax burdens and the payment of an extra $1 to $1.50 monthly for the operation of the treatment plant and sewage system.

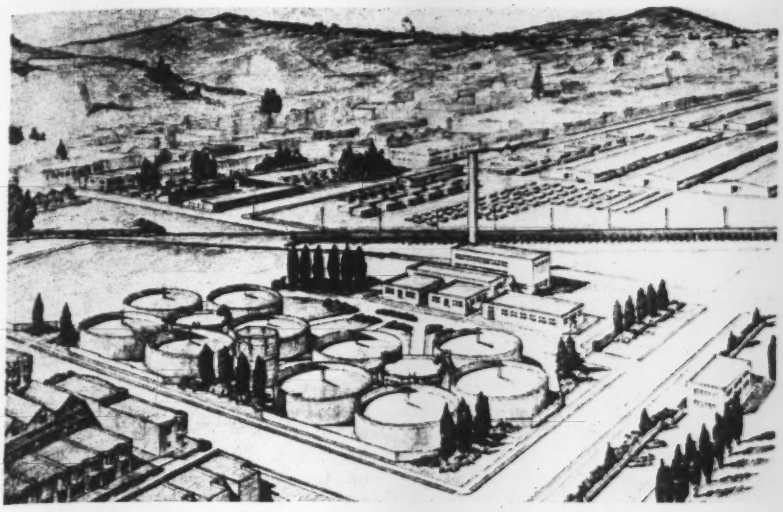
Pennsylvania has trouble, too

Municipalities and industries in Pennsylvania are offering many reasons for their delay in complying with the commonwealth's clean streams program. Excuses ranging from mine subsidences to municipal poverty are being given to the State Sanitary Water Board after it cited 44 municipalities for failure to prepare plans for sewage treatment. Material shortages and inflated costs are also given as stumbling blocks in the way of full industrial compliance with the regulations.

Asserting that Kingston alone has spent $250,000 in recent years to repair sewers damaged by mine subsidences, William J. Fahey, solicitor for that borough, asked "If we're going to spend a million dollars for a sewage treatment plant how do we know the plant will not go down into the mines within the next five years?"

In other cases, principally in coal mining areas, representatives of municipalities testified they were approaching or have already reached the limit of indebtedness, thus precluding for the present any large outlays for sewage treatment plants.

Most of the municipalities, however, informed the board that engineering plans were in various stages of progress and that they would be submitted within periods ranging from a few weeks to several months.



This sludge-processing plant is one unit of sewage treatment facilities in San Francisco on which bids will be taken soon. Sludge will be pumped 6 miles to reach this plant.

S. F. sewage works ready for bids

Bids will be called early next year on four units of a $9,000,000 sewage-treatment plant program in San Francisco, Calif., according to Harry Vensano, director of the Department of Public Works. The localities will provide primary treatment for sewage emanating from the main business district of the city and thus help clear San Francisco Bay waters of sewage contamination. A 65-mgd. plant will be built with the sedimentation and sludge-digestion units located some 6 miles apart.

Because of high property costs near the outfall serving the area it was economically desirable to separate the processing functions and to pump the sludge through two 10-in. lines for 6 miles. Construction of these facilities will be undertaken through four contracts as follows:

North Point sedimentation plant—Largest single contract to be let consists of the sedimentation localities, which it is estimated will cost more than $4,000,000. There will be three separately enclosed sedimentation basins, each 297x38 ft. The first 72 ft. of each tank will be used for aeration. Also included in the contract will be a pump room some 180 ft. long located underground beneath an administration building. Pumps will lift the entire flow of sewage after it has passed through bar-rack and grit-removal facilities and from then on the flow through the plant and outfall will be by gravity. Five 6,000-lb.-per-day chlorinators will be provided for either pre- or post-chlorination.

Sludge treatment plant—This item, estimated to cost more than $3,000,000, covers facilities for treating sludge including the following units: Two thickening tanks (90x18 ft. in plan and 12 ft. deep); ten digestion tanks (100-ft. dia. and 30 ft. deep); elutriation tanks; four vacuum filters (8-ft. dia. by 14 ft. long); three flash-drying furnaces; and a waste treatment unit. This latter is in effect a treatment plant in miniature and will handle the combined waste composed of the excess moisture from thickening, the digestion tank supernatant liquor, the spent elutriate and the vacuum-filter filtrate containing some iron salts. At some future date, a larger treatment plant to serve another area of the city will be built at the sludge-processing plant site. When this occurs, the waste treatment unit will be converted to elutriation functions.

Crosstown sludge force lines—Some 75 percent of the suspended solids will be removed at the North Point plant. These will be pumped in a liquid containing 2 percent solids at a rate of 3½ to 4½ fps. through one of the 10-in. lines to the sludge plant at Islais Creek. Until sedimentation facilities are built at Islais Creek, plant effluent will be pumped through the other 10-in. line for elutriation water. In figuring the capacities of the lines, 25 percent additional capacity was allowed to accommodate future ground garbage that will be discharged into sewers by use of home grinders. Cost of the sludge lines is estimated at $500,000.

Influent and effluent channels—Final contract to be let will be for construction of influent and effluent channels at North Point. Four 48-in. cast-iron lines will be hung on two 1,000-ft. city-owned piers of concrete construction. The outfall lines will terminate underwater just short of the end of the piers. Because work involved in this contract is primarily of the waterfront type, it was felt that this could conveniently be let as a separate item.

The North Point plant and other facilities are being designed by the city under the direction of Ralph G. Wadsworth, city engineer, and the Islais Creek plant (sludge digestion) is being designed in the engineering office of Clyde C. Kennedy, consulting engineer, San Francisco. All design is being reviewed as to function by Mr. Kennedy as consultant for the city, officials said.

ONE COMMUNITY—TWO WATER PLANTS

In an effort to settle once and for all the feud bewteen the city of Millville, N. J., and the Millville Water Co. which both operate water plants to supply the city, a 5-man commission has advised the city fathers to buy the privately-owned water plant or sell the city one. At present both plants operate at a loss.

The commission, which started its investigation in June, 1945, has come to the conclusion that one plant is enough and that it could be operated at a profit without competition.

Production of "package" utility units halted

The Borg-Warner Corp. recently announced it would halt production of its Ingersoll utility unit at its Evansville, Ind., plant, organized especially for that purpose immediately following V-J Day.

The Ingersoll utility unit combines refrigerators, washing machines, heating unit, all plumbing, etc., into one piece of equipment. It was designed primarily for use in small bungalow-type dwellings erected in vast numbers by a single builder. The company's decision was seen as an indication of a continuing trend toward individual or comparatively small housing enterprises.

Production of the utility units will not be resumed by Borg-Warner until a sufficient number of large dwelling projects are under way to justify a production of a minimum of 50 units daily.

MEN AND JOBS

Because the landfill disposal procedure is proving so satisfactory at Richmond, Va., R. S. Hopson, chief of the city's refuse bureau, has erected signs inviting the public to visit the disposal areas.

N. W. Pendleton, president, Pendleton Construction Co., Wytheville, Va., personally supervises a 7.9-mile road job held by his firm in western Virginia.

Curtis J. Hooper, Glastonbury, Conn., has been named director of highway planning studies of the Connecticut Highway Department, succeeding Roy E. Jorgensen, appointed deputy highway commissioner in July. Mr. Hooper was graduated from Harvard with an A.B. degree, 1928, and from Harvard Engineering School, 1929, as master of science in civil engineering. He became instructor of surveying in the Harvard engineering camp and then engaged in private construction engineering for four years. He joined the Connecticut Highway Department in May, 1933, and has served in survey and construction work, bridge design and state-wide highway planning. He has also been engaged as supervisor of economic studies in the department. He is an associate member of the Highway Research Board and a member of the Survey Committee of the American Association of State Highway Officials.

Alexander Lyle, for 17 years with the Carleton Co. Inc., on subway construction in New York City is now superintendent for Geo. H. Flinn Corp. on subway construction in Philadelphia, Pa. Lyle worked with Flinn for 12 years prior to joining the Carleton organization in 1930.

W. E. Griffiths, division engineer of the Canadian National Railways at Ottawa, Ont., has been named engineer of track succeeding G. A. Ellis, retiring after 11 years in railway engineering.

***Reviewing the program between recent sessions of the Structural Engineers Association** of California held at Yosemite National Park are officers of the two participating groups. Seated are W. W. Moore (left), president of the Northern California Association and presiding officer at the convention, and R. W. Ware, president of the Southern group. Looking over their shoulders are the vice-presidents of the North and South, John A. Blume and S. B. Barnes, respectively.*

C. E. Maule has been named maintenance engineer for the Columbus, Ohio, Metropolitan Housing Authority. He has supervised construction of various housing developments. The authority operates 1,352 low-rent housing units and 450 veteran housing apartments.

E. L. Godwin is general superintendent in charge of construction of a highway between Avon and Cape Hatteras, N. C., the first ever to be built along North Carolina's Outer Banks. E. W. Grannis and C. P. Ballenger are the contractors.

Col. John B. Hughes, U. S. District Engineers, Charleston, S. C., district, has been elected manager and engineer for the city waterworks. He will succeed the late James E. Gibson. Colonel Hughes has applied for retirement after an Army career of almost 30 years. He became district engineer in Charleston, Oct. 1, 1946. In Germany he served as director of all transportation in the United States zone and as a member of the quadripartite transportation directorate for Germany as a whole. Prior to that assignment he was chief engineer for the Army ground forces following reorganization of the Army in 1942. He completed three years in civil engineering at Virginia Military Institute prior to receiving an appointment to the United States Military Academy, where he was graduated in 1918 as second lieutenant in the Army Corps of Engineers. One of his first assignments was for a topographical survey in Panama. From 1931 to 1934 he was chief of the consulting section in the Office of the Chief of Engineers at Washington. From 1934 to 1936 he was executive officer on construction of the Fort Peck Dam in Montana.

Robert E. Settan, director of the Greensboro, N. C., area rent control office since January, 1945, has resigned to accept an engineering position with the W. H. Weaver Contracting Co. of Greensboro. He obtained his engineering degree from N. C. State College in 1936 and prior to joining the Greensboro office was connected with the H. L. Coble Construction Co. and the W. H. Sullivan Contracting Co. of Greensboro.

William L. Zeigler and **John A. Houseman** have formed a new engineering firm under the name of Zeigler, Houseman & Associates with offices at Dallas, Tex. Mr. Zeigler recently resigned as district engineer for the American Institute of Steel Construction, Inc.; Mr. Houseman has been

engaged in consulting work in Dallas for a number of years.

Otis M. Kitt, Huntington County, Ind., highway supervisor since January, 1946, has resigned. **Jay Shideler** was named by the county commissioners as his successor. Kitt was associated with the county highway department 23 years.

Mark E. Edson, supervising hydraulic engineer with the California division of water resources, retired recently after 25 years of service.

Lieut. Col. Stanley G. Reiff, Omaha, Neb., has been appointed chief of the engineer supply subsection of Eighth Army Headquarters in Yokohama. Before his transfer to Japan recently Colonel Reiff was executive officer to Brig. Gen. Lewis A. Pick at Missouri River Division headquarters of the Army Engineers.

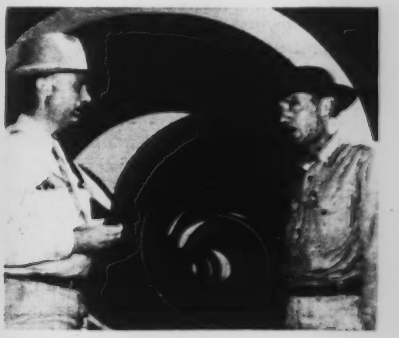
Commissioner G. Albert Hill of the Connecticut Highway Department has announced changes in the personnel of his department as follows: **Ernest T. Perkins,** West Hartford, former senior highway engineer, has been appointed engineer of highway design to succeed **Warren M. Creamer; Earl F. Streeter,** formerly title searcher, has been named promoted to chief examiner of titles and records. Mr. Perkins was graduated from Yale University and joined the department in 1927. He fills the position vacated by Mr. Creamer, who was appointed director of engineering and construction in July. Mr. Streeter began with the Connecticut Highway Department in 1924 as a maintenance inspector.

Fred R. Zeller, Connecticut comptroller, has announced the appointment of **Bertholf M. Pettit,** New Haven, Conn., as temporary and part-time director of the new construction division of his office. Former Dean **Everett V. Meeks** of the Yale Architecture School, New Haven, has been appointed temporary architectural consultant on a half-time basis. The posts will remain on a temporary basis until filled under the merit system of examinations. The construction division of the comptroller's office is being formed to replace the real assets division formerly headed by former Assistant Comptroller Frank L. Barlow. It will be faced with construction of $10,000,000 of state buildings through a period of two years. Highest priority is given institutional buildings at mental hospitals in Middletown, Newtown and Mansfield. Work for immediate construction will cost $3,500,000.

Eric Johnson, assistant to the executive secretary of the AWWA, relaxes for a minute by the "old oaken bucket" at the recent AWWA convention in San Francisco. The bottle is just a coke.

Just finishing a day's work, Robert R. Philippe, director, Cincinnati Testing Laboratory, Ohio River Division, Corps of Engineers, stopped long enough for a quick photograph.

Construction of the foundations for bridges spanning the New River is usually a difficult and slow process but these two men are making good progress. R. K. Williams (right) is general contractor for the foundations for a new highway crossing at Radford, Va., and R. E. Campbell (left) is his general superintendent.



Philip N. Fletcher, project engineer, and John J. Morton, project manager, both for the Guy F. Atkinson Co., contractor on the job, discuss progress of the $3½ million sewer outfall they are building for the city of Los Angeles. Silhouetted behind them are some of the 12-ft. dia. sections used on the inshore end of the outfall.

Col. P. N. Strong, district engineer at Savannah, Ga., points out some of the main features of the Clark Hill Dam project on the Savannah River near Augusta to a group of contractors and prospective bidders on the main dam structure. L. to R: Col. Strong, C. H. Cotter, Blythe Bros. Co., Charlotte, N. C.; F. N. Thompson, Grannis, Higgins, Thompson & McDevitt Co., Charlotte, N. C.; Charles F. Trainor, Savannah District office, and Grady L. Bain, acting resident engineer, Clark Hill project.

ENGINEERING SCHOOL NEWS

Engineering enrollment at peak at Michigan, Colorado and other engineering schools—Tennessee proposes a $1,000,000 engineering school for Negroes—Case president emphasizes trend toward humanistic studies for engineers

Enrollment in engineering schools continues to increase. Typical examples are the colleges of engineering at the University of Michigan and the University of Colorado.

At Michigan the roster of 3,840 undergraduates and 630 graduates is believed to be a record. This fall only 420 students entered direct from high school. Within the next two or three years Dean Ivan C. Crawford expects to see the total enrollment level off around 3,600, as compared with an average prewar enrollment of 2,400.

The average engineering student at Ann Arbor today, 76 percent of the students being ex-servicemen, is showing a greater interest in his academic studies than did his prewar counterpart. Although many students evidence a strong desire to complete their education as quickly as possible, there is a marked interest in postgraduate work. The interest in civil engineering is at an all-time high, with three times as many second-year students enrolled in that field as there were before the war.

At Colorado the engineering enrollment increased to 2,600 as compared with approximately 2,300 a year ago. Just how to accommodate this student body in the buildings that in pre-war days barely took care of 800 students has proved difficult, but by lengthening the work day to 10 P. M., by holding classes on Saturday, and by doubling the size of sections, the teaching staff has managed to meet the emergency. The faculty was greatly increased last year and this with the department of engineering mathematics having a record staff of 27 members.

In the civil engineering department, Warren W. DeRapp has been engaged as assistant professor. He obtained his doctor's degree from the University of Minnesota, where he taught mechanics and kinematics for seven years. He has also worked for the Kansas State Highway Department. Other new members of the department are William L. Sutherland, instructor; and Terry Triffett and Richard C. Leonard, part-time instructors.

Clarkson College, Potsdam, N. Y., will construct a new laboratory building and a new gymnasium next year.

An expansion program of $3,500,000 which will include $1,000,000 for an engineering school will open up a new chapter in the education of Negroes by southern states, officials of the Tennessee State College at Nashville have announced. Walter S. Davis, president, said that this "is a first step to provide professional training for Negroes in the field of technical education of the highest type."

Ever-recurring references are being made by engineering educators to the new trend toward broadening curricula of engineering schools. T. Keith Glennon, new president of Case Institute of Technology, in this respect is following in the footsteps of his late predecessor, William E. Wickenden. Recently he said:

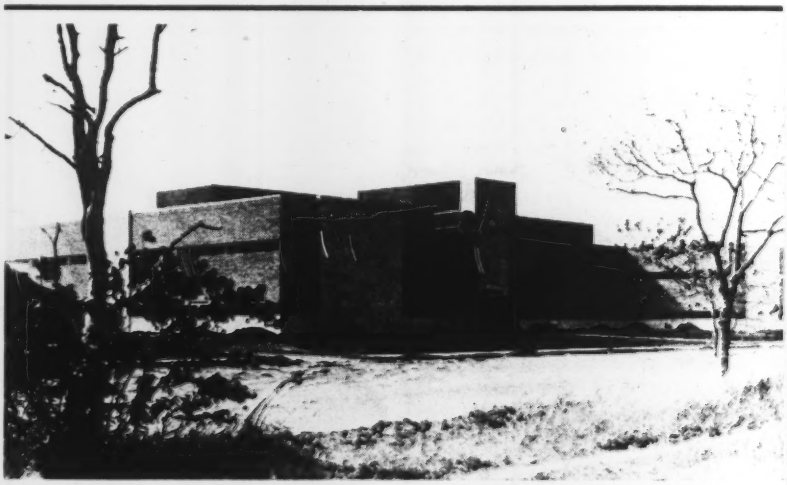
"Tomorrow's engineering education must be a good humanistic education as well as a good scientific and technical education; more time and emphasis will be given to studies of English, history, social institutions, government, economics and psychology—and to the sources of enjoyment and enlightenment to be found in literature, the fine arts and the study of philosophy."

Doctor Wickenden had said:

"It is important for the engineer to know the meaning of literary and art forms, but it is just as important that the man of art or letters should know the fundamental meanings of technology. To interpret them in terms that all may understand should be one of the major cultural contributions of the engineers of our generation."

Construction has begun on a new science building on the Homewood campus of the Johns Hopkins University, Baltimore, Md., to be named for John Boswell Whitehead, one of the pioneers in the development of the school of engineering and former dean and director. The new 2-story-and-basement building will be known as Whitehead Hall—the first structure at Hopkins to be named for a living person. The building, to be completed next year, will be used principally by the school of engineering and other scientific departments at Hopkins.

Thomas F. Hubbard has been promoted to professor of civil engineering. Professor Hubbard has a long experience in the field of planning, having served as a consultant to the National Resources Board and the State of Maryland. For several years he has been a member of the Commission on City Plan, at Baltimore, Md., and now serves as chairman. Shigeo Okubo, formerly instructor in the University of Hawaii, has been appointed instructor in civil engineering.



Oil Research Laboratory—The Shell Oil Co. this month will dedicate its new exploration and production research laboratory, now nearing completion near Houston, Tex. Designed and built by The Austin Co., the building is equipped with removable dividing walls of glazed tile and is based on a standard unit of a large laboratory room and two adjoining offices. All glass used is infrared and ultraviolet-absorbent to reduce heat and glare.

Expect building supplies to be adequate in 1948

The building materials supply situation in 1948 is expected to vary from "comfortable" to "fairly adequate", with the probable exception of steel and steel products, according to a forecast prepared by the economists of the Producers' Council, national organization of building products manufacturers. David S. Miller, Council president, reports.

"This forecast must be qualified, however, in view of the announcement that the Administration is seeking authority for allocation and control over the use of basic products," he added. "Even though housing or construction as a whole might receive favorable treatment in such a control system, the imposition of controls could seriously interfere with the progressive re-establishment of orderly markets.

"The degree of materials shortages next year also will partly depend upon ultimate decisions in respect to foreign aid. So far as building materials are concerned, the indirect impact of a foreign-aid program, accompanied by steel and freight car shortages, is likely to be more important than direct demands for building products.

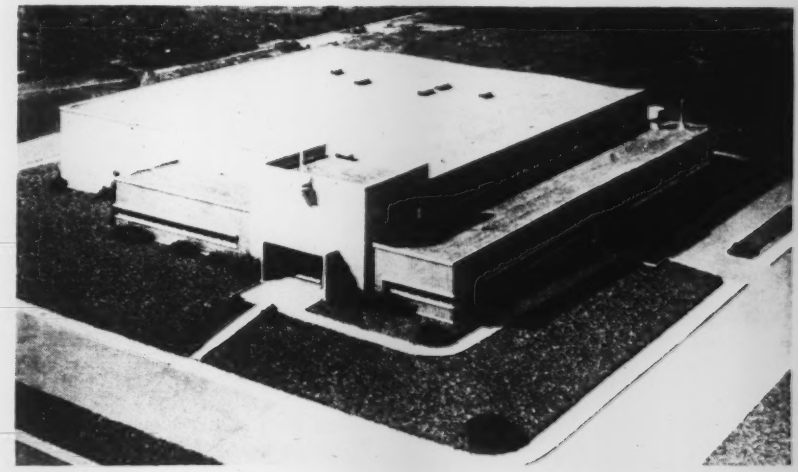
"For 1948 we anticipate a smaller list of short products. Structural steel, reinforcing bars, sheet steel for warm air furnaces, duct work, downspouts and gutters and nails will remain hard to get. Cast iron soil pipe may still be tight during the first few months of next year.

"Lumber, including millwork and hardwood flooring, promises to be in sufficient supply next year. New or expanded plants for gypsum board, plywood, and other comparatively new products will come into operation during 1948 and help to boost output. Inventories will improve though they will probably not be up to normal standards."

Life insurance groups can build Pa. housing

The Pennsylvania Supreme Court on Nov. 26 upheld the constitutionality of the state's new law permitting life insurance companies to enter the real estate and construction business as investors.

Millions of dollars will be available for building investment in Pennsylvania under the new law, much to be spent on rental housing projects. Suit to test the measure was filed a month ago (*ENR* Nov. 13, vol. p. 642).



***Silk Mill**—A new plant, now under construction at Glen Rock, N. J., for the Ducharne Silk Co., will be a controlled-conditions silk weaving mill. Designed to provide maximum economy through the use of standard trusses and equipment, the structure has two unobstructed 80-ft. bays, with 17-ft. clearance, and has welded H-section trusses, under no permanent partitions in the manufacturing area. A metal roof deck is provided, with two-inch glass fiber insulation, and the street facade is faced with limestone. The Austin Co. designed and is constructing the building.*

Additional work awarded for San Diego aqueduct

A contract for a 10-mile gravity water line has been awarded by the San Diego County Water Authority to American Pipe & Construction Co., Los Angeles, for $358,699. It is to be the west section of the Oceanside-Fallbrook extension of the San Diego Aqueduct (*ENR* May 6, vol. p. 362). The east section was awarded several weeks ago to Edward Green Co., Los Angeles. The total length of the line is to be approximately 17 miles.

Work has been started on another 17-mile line, the LaMesa-Sweetwater extension, that will connect with the aqueduct near the San Vicente tunnel to deliver water into the Sweetwater reservoir for residents of the National City and Chula Vistas areas. (*ENR*, Nov. 6, vol. p. 627)

The San Diego Aqueduct, the 71-mile project which links the Metropolitan Aqueduct to San Diego, has been completed and tested for water tightness by the Navy, which supervised construction. The principal water storage reservoirs of San Diego are practically empty.

City and county water authority officials are now considering immediate construction of additional 50 mgd. facilities for the aqueduct doubling its present capacity. Original plans called for this construction for some time in the future.

Col. G. W. Gillette to head N. C. ports authority

Col. George W. Gillette, of Atlanta, Ga., division engineer of the South Atlantic Division, Corps of Engineers, will become executive director of the North Carolina State Ports Authority, effective Jan. 1. He is retiring from Army duties.

In his new post, he will be responsible for the execution of the commission's policies of developing the state's ports and waterway facilities. He has served twice as head of the Wilmington district of the Corps of Engineers and before the war he assisted in organizing the Engineer Training Center at Belvoir, Va., becoming its executive officer.

Ohio beach erosion plan to be ready next year

Ohio's plan for spending a $1,075,000 appropriation to protect Lake Erie's southern shore from erosion will be completed by the end of 1948, announced George B. Sowers, state director of public works, at a recent meeting of the beach erosion committee of the Ohio Postwar Program Commission. (*ENR* Nov. 27, vol. p. 719).

Mr. Sowers' proposals call for expenditure of approximately $225,000 by the state at Reno Beach, the fund to be matched by property owners.

OBITUARY

Andrew K. Johnson, 65, former highway engineer of Queens, New York City, died Nov. 24 at St. Albans, N. Y. He retired on June 30, 1946, after 40 years in the service of the city, 32 of them spent at Queens Borough Hall. Mr. Johnson attended Cooper Union Institute of Technology. Later he received the degrees of B.S. and C.E. from New York University.

He worked on the Catskill Aqueduct, 1906–14; was assistant engineer in the Queens Highway Department 1914–18; principal assistant to the engineer of highways, 1918–28, and chief engineer of highways in Queens, 1928–46.

Chauncey G. Helick, 77, at one time city engineer of Easton, Pa., died Nov. 19 in Philadelphia, Pa. He was graduated at Lafayette College in 1891 and taught there for three years.

Scott Hastie, 64, assistant director of housing for the Province of Alberta, Canada, died Nov. 8.

John W. Brookfield, 68, president of the Brookfield Construction Co., Halifax, N. S., died Nov. 20. He had been manager of the Halifax Graving Dock Co. before it was taken over by the dominion government 29 years ago.

Maj. P. J. Jennings, for 15 years superintendent of Banff National Park, died in Calgary, Alta., Nov. 14. He joined the natural resources department of the Canadian Pacific Ry. in 1909 in the construction of its irrigation system.

Lieut. (j.g.) Howard H. Disbrow USNR, 33, on Nov. 15 was buried in Germantown, N. Y., his body having been brought back from New Caledonia in the Pacific where he died in service May 22, 1945. He was a graduate of the Rensselaer Polytechnic Institute in 1933. After some work for the Maritime Commission in designing re-inforced concrete barges he enlisted in the Naval Reserve and early in the war was assigned to the New Hebrides Base for ship repair. Later he was transferred to New Caledonia to relieve the commanding officer there.

George M. Brown, a civil engineer for Syracuse, N. Y. for 20 years, died there recently.

Otto Joslin, 58, engineer who built the Union Station and passenger yards in Atlanta, Ga., died recently at Nashville, Tenn. Senior assistant engineer in charge of construction for the Nashville, Chattanooga and St. Louis Railroad, Mr. Joslin began his career in 1910.

Howard Allen Glenn, 53, president of the Standard Bitulithic Co., New York City, died at West Orange, N. J., Nov. 26. Graduated from Union College in 1916 with a degree in civil engineering, he joined Standard Bitulithic ten years ago.

E. E. R. Tratman dies; Ex-Western Editor of ENR

E. E. R. Tratman, former western editor of *Engineering News-Record* and author of "Railway Track and Maintenance," died at his home in Wheaton, Ill., Nov. 30, in his 85th year. Mr. Tratman retired in 1932, but had continued an active interest in engineering work, especially his work on the Committee on Yards and Terminals of the American Railway Engineering Association, for which he had prepared a bibliography for many years.

Mr. Tratman was born in Bristol, England, in 1863, studied engineering under Edward Wilson, consulting engineer of London, and came to the United States in 1884 to join the staff of the Long Island R. R. In 1886 he joined the editorial staff of *Engineering News* at New York. During that period he also acted as a special agent for the U. S. Department of Agriculture on an investigation of railroad ties.

In 1897 Mr. Tratman was transferred to Chicago as western editor of *Engineering News.* In the same year he published the first edition of "Railway Track and Track Work," which was rewritten in 1926 as "Railway Track and Maintenance." Later he prepared texts on railroad maintenance and structures for the International Correspondence Schools.

Mr. Tratman was a charter member of the American Railway Engineering Association. He served the Illinois Society of Engineers as secretary for 20 years, having been elected president in 1923.

MAJOR MEETINGS

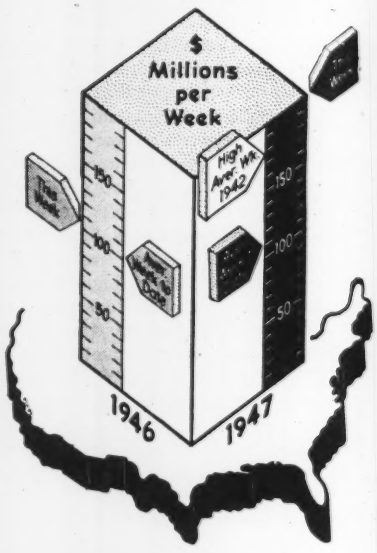
American Society of Agricultural Engineers, winter meeting, Stevens Hotel, Chicago, Ill., Dec. 15-17.

American Society of Civil Engineers, annual meeting, Hotel Commodore, New York, N. Y., Jan. 21-24, 1948.

Canadian Construction Association, 30th annual meeting, Chateau Frontenac, Quebec, Que., Jan. 25-28.

American Road Builders' Association, and its Divisions, annual meeting, Willard, Mayflower and Statler Hotels, Washington, D. C., Jan. 26-28.

CONSTRUCTION ACTIVITY



As Reported this week to . . .
Engineering News-Record

CONTRACT VOLUME

Continental U. S. Only (Thousands of Dollars)

	Week of Dec. 4 1947	Cumulative 1947 (49 wks.)	Cumulative 1946 (49 wks.)
Federal	$20,825	$590,574	$594,646
State & Mun.	55,860	1,746,525	1,351,448
Total Public.	$76,685	$2,337,099	$1,946,094
Total Private	137,329	3,032,763	2,982,473
U. S. Total.	**$214,014**	**$5,369,862**	**$4,928,567**

WHERE CONSTRUCTION ACTIVITY ORIGINATED THIS WEEK

Dollar Volume (Thousands)

Type of Work	This Week	Cumulative 1947 (49 wks)	Cumulative 1946 (49 wks)
Waterworks ..	$8,983	$134,976	$102,834
Sewerage	4,863	166,825	108,527
Bridges	4,890	179,473	123,460
Highways	26,708	765,588	745,359
Earthwork, Waterways	8,536	286,564	319,883
Buildings, Public	16,549	568,199	395,875
Industrial ..	9,251	826,778	994,658
Commercial	120,958	1,811,581	1,802,014
Unclassified	13,276	629,878	335,957

NOTE: Minimum size projects included are: Waterworks and waterway projects, $22,500; other public works, $40,000; industrial buildings, $55,000; other buildings, $205,000.

NEW PRODUCTIVE CAPITAL

	Cumulative 1947 (49 wks.)	Cumulative 1946 (49 wks.)
NON-FEDERAL ..	$2,317,933	$1,531,903
Corporate Securities	965,211	560,214
State and Municipal	1,105,011	746,689
Fed. Aid Highway	247,711	225,000
FEDERAL	818,729	1,714,695
Total Capital	$3,136,662	$3,246,598

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Dec.'47	432.30	207.81
Building Cost	Dec.'47	325.27	175.83
Volume	Nov.'47	238	104